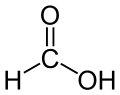
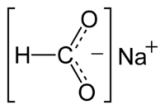
VDS Date: 2/20/2012

Exercise 6th Class NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

H-H exercise

Instructions: write out the solutions to these problems

**Henderson-Hasselbalch example 1**

**Formate Sodium Formate**

What is the pH of a solution made by mixing 200 ml of 0.5 M formic acid with 150 ml of 1 M sodium formate if the pKa of formate is 3.75?

pH = pKa + log [A]/[HA]

First calculate the molar concentrations of the two species:

[HA]=? Units is mol/Liter

[A]=?

What is final volume V2?

**Henderson-Hasselbalch example 2**

How much 1 M HCl is needed to adjust the pH of 100 ml of 0.1 M Hepes to 7.3 if the pKa of Hepes = 7.5?

pH = pKa + log [A]/[HA]

What is the unknown in this equation?

Derive expressions for the concentrations of acid and base:

[A] = ? And [HA] = ?

[A] = (0.1) [100/(100+ x)] = …

[HA] =

**Henderson-Hasselbalch example 3**

What molar ratio of base to acid is needed to make a pH 7.5 phosphate buffer given the pKa = 6.86?

pH = pKa + log [A]/[HA]

Fill in the values you know first…